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REGULATION OF TOXIC POLLUTANTS UNDER THE CLEAN WATER ACT: NPDES TOXICS CONTROL STRATEGIES

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IN 1972 CONGRESS, in what is now called the Clean Water Act (the Act)[1] established as a national policy that "the discharge of toxic pollutants in toxic amounts be prohibited."[2] To accomplish this policy and a series of other ambitious national goals and policies[3] the Act provided an efficient and effective tool for pollution control: the National Pollution Discharge Elimination System or "NPDES" permit.[4] Pursuant to the Act, no source may directly discharge any pollutant into navigable water unless the polluter has obtained and is in compliance with an NPDES permit.[5] Through these permits enforceable limitations can be imposed on the types and quantities of pol-

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[1] 33 U.S.C. §§ 1251-1376 (1982). The current structure of the Act was originally established in the Federal Water Pollution Control Act Amendments of 1972. The Act is now generally referred to as the Clean Water Act. *See* Pub. L. 95-217, § 2, 91 Stat. 1566 (1977).

[2] 33 U.S.C. § 1251(a)(3) (1982).

[3] The Act also set among other national goals, that the "discharge of pollutants into the navigable waters be eliminated by 1985," and an interim goal that waters have achieved a level of quality by July 1, 1983, which provides for "the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water. . . ." 33 U.S.C. §§ 1251(a)(1), (a)(2) (1982).

[4] 33 U.S.C. § 1342 (1982). *See infra* notes 16-57 and accompanying text.

[5] 33 U.S.C. § 1342 (1982). *See infra* notes 19-30 and accompanying text.

lutants which a source may discharge.[6]

Although the Clean Water Act places special emphasis on the control of toxic pollutants,[7] the NPDES program is designed to control all types of water pollution,[8] and initial implementation of the Act focused on control of conventional forms of pollution such as suspended solids and biological oxygen demanding substances.[9] The reasons are not hard to understand. Prior to 1972, there had been no effective national program of water pollution control, and the task of controlling even conventional pollutants was enormous.[10] First priority went to the relatively simple job of limiting the large quantities of conventional pollutants which were being discharged.[11] Further, toxic pollutants are generally discharged at a much lower level

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[6] *See infra* notes 31-57 and accompanying text.

[7] Pursuant to section 307(a)(1) of the Act, 33 U.S.C. § 1317 (1982), the Environmental Protection Agency has designated a list of sixty-five pollutants as toxic for purposes of regulation under the Clean Water Act. 40 C.F.R. § 401.15 (1984). *See infra* notes 61 & 103-113 and accompanying text.

[8] The Act prohibits the direct discharge of any "pollutant," and pollutant is defined broadly to include almost any substance or pollutant parameter including temperature. 33 U.S.C. § 1362(6) (1982). *Cf.* National Wildlife Federation v. Gorsuch, 693 F.2d 156 (D.C. Cir. 1982).

[9] As a Staff memorandum to the Senate Committee on Public Works and Transportation reported:

> The reasons EPA virtually ignored toxic substances in the first go-round of the effluent guidelines program were the complexity of the task, high costs, the lack of testing methodologies and available data, time constraints, and its stated intention to rely on the Section 307(a) chemical-by-chemical regulatory approach. Thus, EPA developed numerical standards, telling dischargers in various industrial sub-categories what they had to do to achieve BPT and BAT for the traditional parameters, such as BOD, suspended solids, and pH, but very little about the control needed for such chemicals as carbon tetrachloride, Kepone, mirex, and others.

3 A LEGISLATIVE HISTORY OF THE CLEAN WATER ACT OF 1977: A CONTINUATION OF THE LEGISLATIVE HISTORY OF THE FEDERAL WATER POLLUTION CONTROL Act 335, 95th Cong., 2d Sess. (Comm. Print 1978)(hereinafter cited as LEG. HIST. 1977).

[10] *See* 2 A LEGISLATIVE HISTORY OF THE FEDERAL WATER POLLUTION CONTROL ACT AMENDMENTS OF 1972 1419-28, 93d Cong., 1st Sess. (Comm. Print 1973) (hereinafter cited as "LEG. HIST. 1972"); Muskie, *A Legislator's View of Impending Water Quality Legislation*, 13 B.C. INDUS. & COM. L. REV. 629 (1972); Note, *The Refuse Act: Its Role Within the Scheme of Federal Water Quality Legislation*, 46 N.Y.U.L. REV. 304 (1971).

[11] *See supra* note 9.

than conventionals, and their presence is difficult and expensive to monitor.[12] Monitoring techniques are only now becoming available on a wide scale to measure these small concentrations.[13] Finally, our understanding of and public concern with the environmental and health problems of exposure to small concentrations of toxic pollutants has increased dramatically.[14]

The Environmental Protection Agency (EPA), which administers the NPDES permit program, is now shifting its attention to control of toxic pollutants. Since 1983 EPA has taken a number of actions which have the potential to integrate several aspects of the Clean Water Act into a more effective and comprehensive scheme for regulating the discharge of toxic pollutants.[15] These steps have included promulgation of 1) national effluent limitations guidelines covering toxic pollutants in major industries, 2) revised NPDES permit regulations which contain nu-

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[12] In describing the difficulties of collecting data on the presence of toxic pollutants in waste water, EPA has noted:

> As Congress recognized in enacting the Clean Water Act of 1977, the state-of-the-art ability to monitor and detect toxic pollutants is limited. Most of the toxic pollutants were relatively unknown until only a few years ago, and only on rare occasions has EPA regulated, or has industry monitored or even developed methods to monitor for these pollutants. . . . Moreover, state-of-the-art techniques involve the use of expensive, sophisticated equipment, with costs ranging as high as $200,000 per unit.

44 Fed. Reg. 62,204, 62,208 (to be codified at 40 C.F.R. pt. 410) (proposed Oct. 29, 1979).

[13] *Id.*

[14] As Senator Muskie noted in Senate debate on the 1977 amendments to the Act: "The seriousness of the toxics problem is just beginning to be understood. New cases are reported each day of unacceptable concentrations of materials in the aquatic environment, in fish and shellfish, and even in mother's milk." 3 LEG. HIST. 1977, *supra* note 9, at 454.

[15] *See* 49 Fed. Reg. 38,000 (1984). In its recently promulgated NPDES permit regulations, EPA describes what it calls its "Toxics Control Strategy." EPA describes this strategy as consisting of three elements: 1) a process of identifying toxic pollutants through the NPDES implementation process, 2) establishment of permit limitations on toxic pollutants, and 3) provisions for monitoring conditions after permit issuance to allow for permit modification. *Id.* The Agency has, however, taken an array of actions, broader than those described which, together, may more properly be called the EPA's toxics control strategy. These actions establish the legal basis for including enforceable limitations on toxic pollutants in NPDES permits.

merous requirements geared to imposing specific toxic limitations in permits, 3) revised water quality standards regulations which may force states more effectively to regulate toxic pollutants and 4) publication of a national policy on the development of permit limitations based on the toxicity of the discharge as a whole. Although few of these actions clearly mandate the control of toxic pollutants, they do provide powerful legal tools which can be used by the government or environmentalists to force the use of stringent controls on the discharge of toxic pollutants by individual sources.

I. CONTROL OF TOXIC POLLUTANTS UNDER THE NPDES PERMIT PROGRAM

With enactment of the Clean Water Act, Congress established the first comprehensive federal scheme for control of water pollution.[16] The primary focus of the Act is the NPDES permit system which controls the discharge of pollutants by industrial and municipal sources directly into navigable waters.[17] Most of the major provisions of the Act are geared to placing enforceable restrictions on this "direct discharge" of pollutants.[18]

The permit system is driven by the basic provision of section 301(a) which provides that it is unlawful to "discharge" a pollutant unless in compliance with an NPDES permit.[19] "Discharge" is defined to include the addition of a pollutant to navigable waters from a "point source"

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[16] *See generally* R. Zener, *The Federal Law of Water Pollution Control* in FEDERAL ENVIRONMENTAL LAW 682-790 (E. Dolgin & T. Guilbert eds. 1974); Smith, *Highlights of the Federal Water Pollution Control Act of 1972*, 77 DICK. L. REV. 459 (1972-1973).

[17] *See supra* note 16. *See also* EPA v. State Water Resources Control Bd., 426 U.S. 200 (1976).

[18] Not all of the significant portions of the Act deal with direct dischargers. In addition to other regulatory provisions which apply to sources which do not directly discharge pollutants, *see infra* note 21, a major aspect of the Act is the provision of federal funds for the construction of municipal sewage treatment facilities. These provisions are included in Title II of the Act. Additionally, section 404 provides a separate permit program for dredge and fill operations in wetlands, 33 U.S.C. § 1404, (1982), and section 311 establishes a program of liability for the discharge of oil and hazardous substances. 33 U.S.C. § 1321 (1982).

[19] 33 U.S.C. § 1311(a)(1) (1982).

such as a pipe, ditch or channel.[20] This definition excludes from the permit requirement those sources which put their wastes into a municipal sewage system ("indirect dischargers")[21] and "areawide discharge" such as irrigation runoff from agriculture.[22] Most large industrial and municipal systems, however, directly discharge their wastes and are thus subject to the NPDES system.

NPDES permits are issued either by EPA or states that have an approved program,[23] and permit writers may place a variety of conditions in the permit. These conditions may include not only specific restrictions on the discharge of pollutants, so-called effluent limitations, but also such requirements as schedules for achieving effluent limitations and monitoring and reporting obligations.[24] Violation of the requirements of a permit may subject the source to civil and criminal penalties.[25] In most cases, however, compliance with the permit is deemed compliance with the Act.[26] A source which satisfies all of the requirements of the permit will, therefore, not be subject to

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[20] *See* 33 U.S.C. § 1362(12), (14), (16) (1982). The term "discharge of pollutants" is defined to include the "addition of any pollutant . . . from any point source. . . ." *Id.* § 1362(12). The term "point source" is defined to include "any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel . . . from which pollutants are or may be discharged." *Id.* § 1362(14).

[21] Indirect dischargers are regulated by the pretreatment requirements of section 307(b). 33 U.S.C. § 1317(b) (1982). Under the Agency's current policy indirect dischargers must meet nationally promulgated technology based limitations for pollutants which would interfere with or pass through a municipal treatment system. *See* Chemical Manufacturers Ass'n v. NRDC, — U.S. — (1985), 53 USLW 4193 (U.S. Feb. 26, 1985).

[22] Areawide discharge is regulated under the Act, if at all, by the provisions of section 208 which authorize the imposition of "best management practices" on areawide discharges in areawide management plans. 33 U.S.C. § 1288 (1982). *See generally* Wilkins, *The Implementation of Water Pollution Control Measures — Section 208 of the Water Pollution Control Act Amendments*, 15 LAND & WATER L. REV. 479 (1980).

[23] NPDES permits were initially issued by the EPA. 33 U.S.C. § 1342(a). States may take over the permitting function, however, if they have a permit program approved by the EPA. *Id.* § 1342(b).

[24] *See id.* § 1342(a)(2).

[25] *See id.* § 1319.

[26] *Id.* § 1342(k). *But cf.* 40 C.F.R. 122.41(n) (1984) (an "upset" or unintentional exceedance of permit conditions beyond the control of the permittee may be an affirmative defense in an enforcement action).

enforcement actions for unanticipated effects of the discharge or for the discharge of pollutants not specifically regulated in the permit.[27]

The NPDES permit program is, without doubt, an effective and efficient means of controlling pollution. The specific requirements of the permit are developed pursuant to several statutory bases either at the national level through informal rulemaking or by adjudication on the individual permit.[28] Monitoring is generally straightforward; samples of the discharge can be analyzed to see if they are in compliance with the permit.[29] Enforcement is relatively simple because all that has to be proved is that a polluter discharged more than authorized by its permit.[30]

Given the effectiveness of the NPDES permit program, most of EPA's efforts at control of toxic pollution of water have focused on developing enforceable NPDES limits on toxic pollutants. The Act provides a number of statutory bases for developing these limitations.

A. *Technology-Based Effluent Limitations*

Pursuant to sections 301 and 304 of the Act, every industrial discharger is required to achieve a series of increasingly stringent "technology based effluent limitations" which are generally promulgated on a na-

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[27] Regardless of permit conditions, a direct discharger must comply with toxic effluent standards promulgated pursuant to section 307(a)(2). 33 U.S.C. § 1342(k) (1982). *See* Inland Steel Co. v. EPA, 574 F.2d 367 (7th Cir. 1978).

[28] Section 304 requires promulgation, through informal rulemaking, of national effluent limitations guidelines. These guidelines must be included in NPDES permits. *See* E.I. DuPont de Nemours v. Train, 430 U.S. 112 (1977); *see infra* notes 31-34 and accompanying text. Additionally, section 402(a) of the Act provides authority for the permit writer to include conditions in permits even when national regulations have not been promulgated. 33 U.S.C. § 1342(a) (1) (1982). The permit issuance procedures, including regulations dealing with adjucations associated with permit issuance, are found at 40 C.F.R. Part 125 (1984).

[29] Most monitoring is done by the permittee and reported to the agency. Requirements for this monitoring are contained in the permits, and false reporting can result in criminal prosecution. 33 U.S.C. § 1319(c)(2) (1982).

[30] *See* Guida, *Dramatic Growth in Citizen Suits Under the Federal Clean Water Act*, NAT'L. L. J. Dec. 3, 1984, at 24; Miller, *Private Enforcement of Federal Pollution Control Laws*, 13 ENVTL. L. REP. 10309, 13320 (1983).

tional basis by EPA in the form of "effluent limitations guidelines."[31] These guidelines specify the quantities of specific pollutants that a facility within a given industrial category may discharge. For example, one effluent limitation guideline states that no offshore oil and gas rig may discharge more than 48 milligrams of oil per liter of waste water.[32] Unless they qualify for one of a limited number of variances, all facilities within an industrial category must meet the nationally promulgated guidelines.[33] Where EPA has not established a national effluent limitation guideline, permit writers must develop these limitations on a case-by-case basis.[34]

The Act provides that facilities will be subject to increasingly stringent technology based effluent limitations. By July 1, 1977, industrial sources were to have achieved limitations representing what is called "best practicable technology" or "BPT."[35] The Act further provides that by July 1, 1984, existing sources must meet limitations for most toxic pollutants based on "best available technology" or "BAT."[36] BPT and BAT limitations are based on

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[31] 33 U.S.C. §§ 1311, 1314 (1982). *See* E.I. Dupont de Nemours & Co. v. Train, 430 U.S. 112 (1977).

[32] 40 C.F.R. § 435.42 (1984).

[33] The Act now provides several statutory variances from certain of the technology based limitations for industrial dischargers. Section 301(c) provides for variance from certain limits based on the cost of meeting the limitation to the discharger. 33 U.S.C. § 1311(c) (1982); *see* EPA v. National Crushed Stone, 449 U.S. 64 (1980). Section 301(g) provides for a variance based on water quality considerations. 33 U.S.C. § 1311(g) (1982). Section 316 provides for a variance from limitations on the discharge of heat in certain cases. 33 U.S.C. § 1326 (1982). Additionally, a new section, 301(m), adopted in 1981, allows for a limited variance for certain point sources discharging in "deep waters of territorial seas." 33 U.S.C. § 1311(m) (1982). None of these variances are available from limitations on toxic pollutants. *See infra* note 64 and accompanying text. Additionally, EPA has developed what it calls a "fundamentally different factors" variance which authorizes site-specific application of section 304 factors to vary national effluent limitations guidelines. 40 CFR §§ 125.30 - 125.32. *See infra* notes 78-82 and accompanying text.

[34] *See supra* note 28.

[35] 33 U.S.C. § 1311(b) (1) (A) (1982).

[36] 33 U.S.C. § 1311(b) (2) (A) (1982). Additionally, the Act provides for a class of restrictions on "conventional pollutants" called "best conventional pollutant control technology," or "BCT", which must be achieved by July 1, 1984. 33

an assessment of similar factors, but the cost of achieving the reductions is to be less of a factor in establishing BAT limitations.[37] Thus, in most cases BAT is more stringent than BPT. New sources are subject to "new source performance standards" or "NSPS" which are generally similar to BAT.[38]

These limitations are called "technology based" because they are determined solely on the technological feasibility of meeting the limitation.[39] In setting these limitations the Act requires EPA to consider a range of factors, including the existing pollution control technology and the cost of achieving effluent reductions.[40] Based on a consideration of these factors EPA is able to identify a limitation which sources within the industry will be able to meet. In setting these limitations, EPA does not consider the direct enviromental benefits to a stream of reducing the discharge of pollutants.[41] Only the technological feasibility of reducing the discharge is relevant.[42]

B. *Water Quality Standard-Based Effluent Limitations*

Section 303 of the Act requires states to develop "water quality standards" for all waters within their jurisdiction.[43] These water quality standards include a "designated use" in which the state specifies the intended uses of the stream

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U.S.C. § 1311(b) (2)(E) (1982). *See* American Paper Institute v. EPA, 660 F.2d 954 (4th Cir. 1981).

[37] *Compare* 33 U.S.C. § 1314(b)(1) (1982) *with* 33 U.S.C. § 1314(b)(2) (1982). *See* Weyerhaeuser Co. v. Costle, 590 F.2d 1011 (D.C. Cir. 1978).

[38] 33 U.S.C. § 1316 (1982).

[39] *See infra* notes 40-42.

[40] *See* U.S.C. § 1314(b) (1982).

[41] As Senator Muskie noted in describing the cost consideration requirements for setting BPT limitation: "The conferees agreed upon this limited cost-benefit analysis in order to . . . avoid imposing on the Administrator any requirement to consider the location of sources within a category or to ascertain water quality impact of effluent controls." 1 LEG. HIST. 1972, *supra* note 10, at 170.

[42] *See Weyerhaeuser Co.*, 590 F.2d at 1011; American Petroleum Inst. v. EPA, 540 F.2d 1023 (10th Cir. 1976).

[43] 33 U.S.C. § 1313 (1982). *See generally* Gaba, *Federal Supervision of State Water Quality Standards under the Clean Water Act*, 36 VAND. L. REV. 1167 (1983).

or lake and pollutant "criteria" which specify the maximum concentrations of pollutants which can exist in the water without impairing the use.[44] For example, a water quality standard may state that a certain stream is designated as a "warm water fishery" and that concentrations of cyanide in the water may not exceed 5.0 micrograms per liter. Section 301(b)(1)(c) of the Act requires that NPDES permits include limitations which will ensure that water quality standards are not violated.[45] Thus, permit writers must determine whether the amount of a pollutant discharged by a source will cause the level of that pollutant in the stream to rise above criteria values. Limitations can be placed in the permit to ensure that this does not occur.

Although all sources must meet applicable technology-based limitations, sources are subject to water quality standard-based restrictions only where their discharge will cause the water quality standards on the stream to be violated. Water quality-based limitations are only imposed, therefore, when they are more stringent than applicable technology-based limits.[46] In these cases, it is the water quality effect of the discharge, rather than the technological feasibility of control, which determines the effluent limitation in the permit.

C. *Water Quality Related Effluent Limitations*

The Act also provides a mechanism for imposing limitations more stringent than BAT for sources on a particular stream segment. Section 302 authorizes the imposition of these "water quality related effluent limitations" if the water quality in a stream will not attain the national goal of "fishable/swimmable" waters.[47] These limitations may not be imposed, however, if dischargers can demonstrate

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[44] 33 U.S.C. § 1313(c)(2) (1982).

[45] 33 U.S.C. § 1311(b)(1)(C) (1982).

[46] *See* Senate Comm. on Public Works, 93d Cong. 1st Sess., 1 LEG. HIST. 1972, *supra* note 10, at 245-46.

[47] 33 U.S.C. § 1312(a) (1982).

that the cost of achieving the restrictions is greater than the environmental benefits of compliance. [48] For several reasons, including the cost/benefit test and the availability of water quality standard-based restrictions, this section has never been used by EPA.[49] It does, however, provide an additional mechanism for imposing post-BAT toxic effluent limitations.

D. *Toxic Effluent Standards*

Section 307(a)(2) of the Act provides a specific mechanism for placing restrictions on the discharge of toxic pollutants.[50] Pursuant to this section, national "toxic effluent standards" may be established restricting the amount of a toxic pollutant which may be discharged by a source. This section essentially combines the qualities of technology and water quality-based limitations by allowing EPA to place restrictions on the discharge of toxic pollutants, more stringent than BAT, based on consideration of their health and environmental effects.[51] Although these toxic effluent standards are included in NPDES permits, they are also directly enforceable if they have been promulgated on a national level by EPA.[52] Since 1972, EPA has promulgated toxic effluent standards for only 6 pollutants: aldrin/dieldrin, DDT, Endrin, Toxaphene, Benzidine and PCB.[53] Although 1977 amendments to the Act simplified the requirements for setting these standards,[54]

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[48] 33 U.S.C. § 1312(b)(2) (1982).

[49] *See* Gaba, *supra* note 43, at 1201 n.166.

[50] 33 U.S.C. § 1317(a)(2) (1982).

[51] Distinguishing effluent limitations from toxic effluent standards, Senator Muskie noted: "The toxic effluent limitation is a best available technology-based control requirement. A toxic effluent standard is a control requirement based on an established relationship between a toxic pollutant and a receiving water/ecosystem impact." 3 LEG. HIST. 1977, *supra* note 9 at 460. *See also* Hercules, Inc. v. EPA, 598 F.2d 91 (D.C. Cir. 1978).

[52] 33 U.S.C. § 1342(k) (1982). *See supra* note 27.

[53] 40 C.F.R. § 129 (1984).

[54] Clean Water Act of 1977, Pub. L. No. 95-217, § 53, 91 Stat. 1566, 1590 (1977).

no new 307(a)(2) standards have been promulgated since 1976.

E. *Best Management Practices*

Most NPDES permit conditions involve end-of-pipe limitations on the quantities of pollutants which may be discharged.[55] Pursuant to section 304(e), permits may also contain in plant limitations relating to toxic pollutants.[56] These specify in plant management practices such as those necessary to control plant site runoff or spills.[57]

II. NPDES Toxic Control Strategies

On its face the Clean Water Act provides significant legal authority to regulate the discharge of toxic pollutants. EPA has taken steps to implement this authority through a series of regulations and policy statements which authorize, and in many cases require, the inclusion of effluent limitations on a wide range of toxic pollutants in NPDES permits. Together these actions comprise a toxics control strategy which could be used by EPA or private citizens to compel industrial polluters to significantly curtail their discharge of toxic pollutants.

A. *Promulgation of Effluent Limitations Guidelines in the Primary Industries*

In 1975, a group of lawsuits were brought by environmental groups broadly challenging EPA's failure to deal with toxic pollutants. This litigation, consolidated in *NRDC v. Train*, served as the initial, and perhaps most significant, event in directing the federal government to implement a toxics control strategy.[58] In the 1976 consent

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[55] In plant process controls may be used as the basis for effluent limitations guidelines in certain cases. *See* American Petroleum Inst. v. EPA, 540 F.2d 1023, 1033-34 (10th Cir. 1976).

[56] 33 U.S.C. § 1314(e) (1982).

[57] *Id. See* 40 C.F.R. § 122.44(k) (1984).

[58] 8 Env't. Rep. Cas. (BNA) 2120 (D.D.C. Cir. 1976), *as modified sub. nom.*, NRDC v. Costle, 12 Env't. Rep. Cas. (BNA) 1833 (D.D.C. 1979).

decree resolving the case, EPA, environmentalists and industry intervenors agreed on a series of steps EPA would take to control the discharge of these pollutants. The steps primarily focused on putting specific numerical limits on the quantities of 65 toxic pollutants which could be discharged by a group of 21 "primary" industries.[59] Pursuant to the consent decree, the EPA must establish limitations on these toxic pollutants unless, among other things, the pollutants are not present in the discharge or are adequately controlled by limitations on another "indicator" pollutant.[60] Congress largely codified this consent decree in 1977 amendments to the Act which included a requirement that the sixty-five pollutants be formally designated as "toxic pollutants" pursuant to section 307(a)(1).[61]

Since the consent decree in *NRDC v. Train*, EPA's principal strategy for control of toxic pollutants has been to promulgate BPT, BAT, new source standards, and pretreatment requirements for the primary industries which contain restrictions on the discharge of the 65 toxic pollutants.[62] EPA is now in the last stages of promulgating

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[59] *Id. See generally* Hall, *The Control of Toxic Pollutants under the Federal Water Pollution Control Act Amendments of 1972*, 63 IOWA L. REV. 609 (1978). These requirements have since been refined to apply to thirty-four industrial categories and a more detailed list of 134 toxic pollutants. 49 Fed. Reg. 38,000 (1984). *See infra* note 105 for a discussion of these categories.

[60] Paragraph 8 of the Consent Decree; 8 Env't Rep. Cas. (BNA) at 2126. EPA uses "indicator" pollutants for purposes other than satisfaction of the consent decree. For example, EPA claims that limitations on a non-toxic pollutant may not be subject to normally available variances if that pollutant is being used as an indicator for a toxic pollutant. *See generally* 45 Fed. Reg. 33524-26 (1980). Similarly, limitations on conventional pollutants may be more stringent than would otherwise be authorized if they are "indicators" for the presence of toxic pollutants. *See* 40 C.F.R. 125.3(g)(2)(i) (1984).

[61] As Senator Muskie, floor manager in the Senate of the Conference Report on the 1977 amendments, stated: "The conference agreement was specifically designed to codify the so-called 'Flannery decision. . . .'" 123 CONG. REC. 39, 181 (1977). Section 307(a)(1) of the Act requires promulgation of a list of toxic pollutants. Congress specifically mandated the promulgation of the list of 65 pollutants identified as toxic under the consent decree. 33 U.S.C. § 1317(a)(1) (1982). *See* 40 C.F.R. § 401.15 (1984).

[62] Effluent limitations guidelines characteristically contain express limitations on only a few toxic pollutants. This is normally appropriate since, for example, a

these effluent limitations guidelines for the primary industries.[63] Since such guidelines must be included in all NPDES permits issued to facilities within an industry, some level of control of the worst pollutants in the worst industries is assured.

There have been two interesting recent developments in the implementation of the effluent limitations guidelines program. Generally, effluent limitations are independently to be achieved at each "point source," such as a pipe or ditch, at a facility.[64] EPA in 1982, however, promulgated a guideline which makes use of the so-called "water bubble."[65] The effluent guidelines for the Iron and Steel Point Source Category provided that otherwise applicable restrictions on the discharge of a particular pollutant at one pipe could be relaxed, and hence the amount of a pollutant discharged increased, if additional restrictions, resulting in an equivalent reduction of the discharge of that pollutant, were imposed at another pipe within the plant.[66] This regulation constitutes application of a "bubble" policy since the entire facility is treated as if it were under a giant bubble, and although there may be a trading of restrictions within the bubble, the total amount of pollutants discharged from the bubble is the same as that achieved by specific restrictions on each pipe within the facility.[67]

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treatment technology which will remove one organic pollutant will generally remove most other organic pollutants. The NRDC settlement agreement provides that a toxic pollutant need not be specifically regulated if it is adequately controlled by regulation of another pollutant. *See supra* note 60 for an explanation of this concept.

[63] As of March, 1985, EPA had promulgated 23 effluent limitations guidelines and standards under the NRDC Consent Decree. These guidelines are in various stages of litigation and revision. *See* Letter from Ms. Susan Lepow, Assistant General Counsel, U.S. Environmental Protection Agency, to Mr. Jeffrey Gaba. (March 22, 1985) (on file).

[64] 40 C.F.R. § 122.45(a) (1984).

[65] 47 Fed. Reg. 23,258 (1982).

[66] 40 C.F.R. § 420.03 (1984).

[67] The bubble concept has been widely discussed as an economically preferable method of implementing pollution control requirements. *See generally* F. ANDERSON, D. MANDELKER & A. TARLOCK, ENVIRONMENTAL PROTECTION: LAW AND POLICY 263-269 (1984). At least nominally, it provides a more cost-effective approach to

In 1984, however, EPA promulgated revisions to the Iron and Steel bubble regulation which placed an additional restriction on application of the bubble policy.[68] In order to increase discharges at one pipe, a facility must do more than provide compensating reductions at another pipe. If the facility elects to increase discharge at one pipe, the corresponding reduction of the pollutant at another pipe must be greater, thus producing a net reduction of the amounts of a pollutant discharged beyond that which would achieved by applying the limitations to each pipe within the facility. The permit writer must determine an "appropriate reduction amount" for each pollutant traded.[69] For suspended solids and oil and grease, the net reduction must be a minimum of approximately fifteen percent. For all other pollutants the net reduction must be at least approximately ten percent.[70] The Agency states that in determining the amount of net reduction "the permit writer will require further, non-trivial (substantial) reductions only if he determines that they can be achieved without significant additional expenditures."[71]

The bubble concept has been extensively used, and litigated, under the Clean Air Act.[72] Plant wide bubbles are used under the control programs applicable in areas cleaner than national standards, the Prevention of the Sig-

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the control of pollutants by allowing plant operators to select the most economical mix of control measures to achieve a given reduction of a pollutant. Thus, if two sources within a facility are each discharging one hundred pounds of a pollutant, the facility operators may decide it is cheaper to reduce one source by seventy-five pounds, rather than to comply with a uniform requirement that each source reduce fifty pounds. One study, analyzing the use of a bubble in air pollution control, indicated that identical levels of pollution reduction could be achieved much more cheaply if bubbles were authorized. *Id.* at 266.

[68] 49 Fed. Reg. 21,024, 21,025 (1984).

[69] 40 C.F.R. § 420.03(a) (1984).

[70] *Id.* at 420.03(b). Thus, to use the example provided by the Agency in the preamble, if a discharger wants to exceed the otherwise allowable limit on suspended solids by 100 pounds at one pipe, it must now reduce the amount discharged at another pipe by 115 pounds.

[71] 49 Fed. Reg. 21,025 (1984).

[72] *See* Chevron, U.S.A., Inc. v. NRDC, 104 S.Ct. 2778 (1984); Alabama Power Co. v. Costel, 636 F.2d 323 (D.C. Cir. 1979); ASARCO v. EPA, 578 F.2d 319 (D.C. Cir. 1978).

nificant Deterioration or "PSD" program,[73] and in areas with dirtier air, the "Non-attainment" program.[74] There is however, a critical difference between the air bubbles currently used by the agency and the water bubble promulgated in the Iron and Steel Guidelines. Bubbles under the air programs have only been used to calculate whether modified facilities have increased quantitites of emissions significantly enough to trigger the permit requirements of the PSD and Non-attainment programs. Thus, by providing that only net and not gross increases in emissions will be used to calculate the extent of expansion of a facility the air bubble serves, they define a "threshold" for application of control requirements.[75] In contrast, the water bubble actually authorizes the trading of applicable restrictions within a facility and thus serves to define "substantive" requirements for sources.

Revisions to the "water bubble" were negotiated jointly by environmentalists, industry and EPA in the context of litigation over the iron and steel guidlines.[76] The water bubble is applicable only to the iron and steel industry; EPA has not applied the water bubble to any other industrial category. EPA has declined to state its general policy on the use of bubbles in effluent guidelines under the Clean Water Act.[77]

The other interesting development in the guidelines program has been the legal controversy surrounding the

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[73] *See* 40 C.F.R. §§ 51.24, 52.21 (1984).

[74] *See* 40 C.F.R. §§ 51.18(j)(1)(i) and (ii) (1984).

[75] EPA has adopted a policy which expressly authorizes states to employ a "substantive" bubble when developing state established restrictions through the State Implementation Plan. 44 Fed. Reg. 71,780 (1979). *See* Comment, *EPA Approves New Jersey Generic Bubble Rule, Develops Consolidated Guidance for Controlled Trading Program*, 11 ENVTL. L. REP. (ENVTL. L. INST.) 10,119 (June, 1981). Additionally, the Agency is considering a petition by a utility which wants to apply a substantive bubble to two boilers at its power station in Jasper County, Illinois. The petition requests the boilers be bubbled for purposes of achieving new source performance standards for S02. *See* Fed. Reg. 3688 (1985) (proposed amendment to 40 C.F.R. §§ 60.40-.49a).

[76] *See* Miller, *Steel Industry Effluent Limitations: Success at the Negotiating Table* 13 ENVTL. L. REP. (ENVTL. L. INST.) 10,094 (1983).

[77] 49 Fed. Reg. 21,024, 21,025 (1984).

use of variances to modify limitations on toxic pollutants. Section 301(l) of the act specifically precludes modification of effluent limitations applicable to toxic pollutants.[78] Nonetheless, EPA has developed what it calls the "fundamentally different factors" or "FDF" variance to vodigy BPT, BAT or pretreatment limitations for all pollutants on a site specific basis. The FDF variance, which is not specifically authorized by the statute, has been available if a source can demonstrate that it is fundamentally different from other sources analyzed by EPA with respect to the statutory factors which EPA considered in setting the effluent limitations.[79]

In 1983, however, the third circuit held that 301(l) precluded application of the FDF variance to toxic pollutants.[80] Although the court's opinion was limited to use of the FDF variance in the pretreatment program. its logic raised questions about the applicability of the FDF variance for toxic pollutants throughout the guidelines program.[81] EPA had argued that the FDF variance was not a modification of otherwise applicable effluent limitations but was "simply the creation of a more appropriate standard based on factors previously overlooked by the Administrator."[82] Indeed, some courts had suggested that the existence of this flexibility device was necessary for the validity of the nationally promulgated effluent guidelines for existing sources.[83]

In *Chemical Manufacturers Association v. NRDC*, the Supreme Court, in a 5 to 4 opinion, reversed the Court of Appeals and upheld the Agency's authority to apply the

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[78] 33 U.S.C. § 1311(l) (1982).

[79] 40 C.F.R. § 125.30-.32, 403.13 (1984) For a discussion of BPT and BAT Limitations, see *supra* notes 35-42 and accompanying text. For a discussion of pretreatment, *see supra* note 21.

[80] National Ass'n of Metal Finishers v. EPA, 719 F.2d 624 (3d Cir. 1983), *rev'd sub nom.* Chemical Manufacturers Ass'n v. NRDC, 105 S.Ct. 1102 (1985).

[81] *See* 719 F.2d at 645-46.

[82] *Id.* at 645.

[83] *See, e.g.*, E.I. duPont de Nemours & Co. v. Train, 430 U.S. 112, 128 (1977); Kennecott Copper Corp. v. EPA, 612 F.2d 1232, 1243-44 (10th Cir. 1979); Weyerhaeuser Co. v. Costle, 590 F.2d 1011, 1040-41 (D.C. Cir. 1978).

FDF variance to toxic pollutants.[84] Justice White, writing for the majority, continued this Court's willingness to defer to agency interpretations of the statutes they administer.[85] The Court found that the language and legislative history of 301(1) were sufficiently ambiguous that the Agency's interpretation was not precluded and concluded "[i]n the absence of Congressional directive to the contrary, we accept EPA's conclusion that 301(1) does not prohibit FDF variances."[86] Justice White also noted that the Court was not "convinced" that use of the FDF variance would frustrate the goals of Congress since, among other things, it has the same effect as producing a narrowly defined subcategory applicable to only one facility.[87]

The dissent, written by Justice Marshall, found the language and history of the section indicated Congressional intent to preclude such modifications.[88] Justice Marshall also concluded that Congress intended that effluent limitations be set for categories of sources and not on a plant-by-plant basis. This, he claimed, refuted EPA's argument that FDF variances were equivalent to establishing categorical limits composed of a single source.[89]

The narrowness of the Court's majority was perhaps surprising. Prior to adoption of section 301(1) in 1977, the Court had not only upheld the FDF variance from BPT limitations, but it had even suggested that some form of administrative variance was necessary.[90] Although the language of 301(1) seems broad enough to prohibit FDF variances for toxic pollutants, the legislative history is silent on its applicability, and there is support for the Agency's position that it was only intended to limit the use of specific statutory variances. Further, the logic of

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[84] Chemical Mfrs. Ass'n v. NRDC, 105 S.Ct. 1102, (1985).
[85] *See* 105 S.Ct. at 1112.
[86] *Id.*
[87] *Id.* at 1110.
[88] *Id.* at 1113-21.
[89] *Id.* at 1121-24.
[90] E.I. du Pont de Nemours & Co. v. Train, 430 U.S. 112, 128 (1977).

the Agency's position that the FDF is not a variance at all but a site specific application of statutory factors is, in Justice Marshall's words, "superficially powerful."[91] Although he rejected the Agency's position due to his conclusion that the Act emphasized categorical limitations, Justice Marshall did not consider that categorical limits themselves must be supported by adequate data reflecting their achievability. Without the availability of variances, inclusion of sources within a category which are fundamentally different would either jeopardize defense of those categorical limits or require the agency to modify the categorical limits (presumably relaxing the standards) to reflect the anamolous facility.[92] The Agency's FDF variance does not authorize a general modification of these limitations on a plant by plant basis, but allows a modification only in the limited situation where the facility can demonstrate that it is fundamentally different with respect to the factors which EPA assessed in determining that the national limitation was achievable. As the majority observed: "An FDF variance does not excuse compliance with a correct requirement, but instead represents an acknowldgement that not all relevant factors were taken sufficiently into account in framing that requirement originally . . . ."[93]

B. *NPDES Permit Regulations*

In addition to simply including national effluent limitations guidelines for a pollutant in an NPDES permit, permit writers may, in some cases, develop technology-based limitations on additional pollutants. Permit writers may include such limitations when a pollutant is not specifically limited by a national effluent limitation guideline or when a guideline has not been promulgated for an industrial category.[94] These limits are developed on a case-by-

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[91] *National Ass'n*, 105 S.Ct. at 122.
[92] *See* E.I. du Pont de Nemours & Co. v. Train, 430 U.S. at 116-29.
[93] *Id.* at 1111.
[94] 40 C.F.R. § 125.3(c) (1984).

case basis, as part of the permit issuance process,[95] and in setting these limitations, permit writers are required to consider the same factors that are considered in developing national effluent guidelines such as processes employed and available treatment technology.[96]

With respect to toxic pollutants, not only may such limitations be developed, the existing NPDES permit regulations require that permit writers place limits on toxic pollutants which "are or may be discharged at a level greater than the level which can be achieved by the technology-based treatment requirements. . . ."[97] This is satisfied by placing specific limits on either the pollutant or indicator pollutants.[98] Remarkably, this seems to require assurance that all toxic pollutants discharged by a source will be controlled to BAT levels.

EPA has recently promulgated revised permit regulations which contain provisions intended to assist in the development of case-by-case limitations on additional toxic pollutants.[99]

Reporting Requirements. An obvious prerequisite to establishing a specific limitation on a toxic pollutant is information as to whether and at what level that pollutant is contained in the facility's waste water. The NPDES permit regulations establish a series of requirements on the applicant to provide the permit writer with information on the types and quantities of toxic pollutants which are present in the applicant's wastewater.[100] Since measurement of toxic organic pollutants at low levels can be expensive, EPA has stated that these rules are intended as a balance between the permit writer's need for information and the

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[95] 40 C.F.R. § 122.44(a) (1984).

[96] 40 C.F.R. § 125.3(a) (1984).

[97] 40 C.F.R. § 122.44(e)(1)(i) (1984).

[98] 40 C.F.R. § 122.44(e)(2) (1984). *See supra* note 60 for a discussion of indicator pollutants.

[99] National Pollutant Discharge Elimination System Permit Regulations, 49 Fed. Reg. 37,998 (1984) (to be codified at 40 C.F.R. §§ 122, 124-125).

[100] *See infra* notes 92-102.

burden to the applicant.[101]

The primary industries, those major industries initially subject to the NRDC consent decree, are subject to certain mandatory testing and reporting requirements.[102] Applicants for NPDES permits in these industries have a duty to test for and report the presence of toxic metals, cyanide and total phenols.[103] Additionally, EPA has established industry specific lists of additional organic toxic pollutants which facilities in each of the primary industries must, in all cases, test for and report.[104] These requirements may not be waived. Applicants are required to specify the precise levels of these pollutants in their wastewater and are required to measure for these pollutants using approved measuring techniques.[105]

Additionally, an applicant in any industrial category has a duty to provide quantitative data both on pollutants regulated by an effluent limitation guideline and additional pollutants which it "knows or has reason to believe" are routinely present in its waste water.[106] This requirement

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[101] 49 Fed. Reg. 38,002 (1984).

[102] The primary industries are listed at 40 C.F.R. Part 122, Appendix A (1984).

[103] 40 C.F.R. § 122.21(g)(7)(ii)(B) (1984).

[104] 40 C.F.R. § 122.21(g)(7)(ii)(A) (1984); Appendix D.

[105] 40 C.F.R. § 122.21(g)(7) (1984).

[106] 40 C.F.R. § 122.21(g)(7)(iii) (1984). The Agency has given little guidance on when a facility should know or have reason to believe that pollutants are present in its waste. In the preamble to the newly promulgated regulations the Agency states:

> Under the regulation, each discharger must assess the likelihood that a particular toxic pollutant will be discharged above the threshold levels. Applicants may base their assessments on available information on the discharge, including their own experience and knowledge. In some cases, applicants can rely upon previous monitoring data for the pollutant, while in others, new testing may be necessary. EPA expects the applicants to consider, among other things, the age and amount of available data, the levels measured in the past, and any changed circumstances that would suggest the need for additional testing.

49 Fed. Reg. 38,004 (1984). The consequences of inadequate reporting are significant. New information not reported in the permit application may, of course, be the basis for modifying the permit. *See infra* note 121 and accompanying text. Sanctions for improper reporting are potentially severe. Criminal penalties not only apply to a person who "knowingly" makes a false statement on a permit application but also to one who "negligently" violates section 308 of the Act which,

extends to most toxic pollutants present above a threshold level of 10 parts per billion (ppb).[107] Pollutants which will be present below the threshold levels or which the source does not know or does not have reason to believe will be present need not be quantitatively measured.[108] EPA established the threshold to minimize the reporting burden and set the specific threshold based on the accuracy of the existing measurement method.[109]

Finally, all applicants must provide "qualitative" data which requires merely the listing of some other toxics which may be present. For every toxic pollutant that the applicant "knows or has reason to believe" will be present at less than the threshold levels, the regulations require that the applicant either present quantitative data or simply describe the reasons that the pollutant is expected to be discharged.[110] Additionally, applicants are required to list any toxic pollutant which the applicant uses or manufactures as an intermediate or final product.[111] This last requirement, which can impose substantial requirements on an applicant to identify all of the myriad toxics which may be included in industrial processes, may be waived if the applicant demonstrates that such listing would be "unduly burdensome" and that the permit writer has adequate information to issue the permit.[112]

Identification of pollutants as toxic. Pursuant to section

among other things, specifies the EPA's authority to establish reporting requirements. 33 U.S.C. § 1319 (1982).

[107] 49 Fed. Reg. 38,001-38,003 (1984) (to be codified at 40 C.F.R. § 122.21(g)(7)(iii)(B)). For four toxic pollutants, acrolein, acrylonitril, 2,4 dinitrophenaol, and 2-methyl-4,6 dinitrophenol, the threshold is 100 ppb. *Id.*

[108] *See id.* at 38,002.

[109] *See id.* at 38,003. At these levels quantitative data developed by the GC/MS method may not be highly accurate and reliable, and the EPA has stated that this information alone may not be adequate for establishing enforceable discharge limitations. The EPA has indicated, however, that this information may be used for other purposes including, among others, development of "best management practices" or as a basis for requesting applicants to supply additional data using more accurate, although more expensive, analytical techniques. *Id.*

[110] *Id.* 38,004-38,005 (1984) (to be codified at 40 C.F.R. § 122.21(g)(7)(iii)(B).

[111] *Id.* 38,006-38,007 (1984) (to be codified at 40 C.F.R. § 122.21(g)(9) (1984).

[112] *Id.*

307(a)(1) of the Act, the EPA has promulgated a list of pollutants which are classified as toxic for purposes of regulation under the Act.[113] Congress specified this list in the 1977 amendments to the Act, deriving it from the list of toxics developed in *NRDC v. Train*.[114] The list itself, however, has some ambiguities, and EPA's NPDES permit regulations modify the list in some respects.[115]

The NRDC settlement agreement and the 1977 Clean Water Act amendments provide that "phenol" and a number of phenolic compounds, including "chlorinated phenols" and "nitrophenols," are toxic pollutants.[116] EPA has in the past regulated phenols in terms of a specific test method, the 4-aminoantipyrine (4AAP) method.[117] The 4AAP method, however, measures "total phenols" which includes a variety of phenolic compounds

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[113] 40 C.F.R. § 401.15 (1984).

[114] 8 Env't Rep. Cas. (BNA) 2120 (D.D.C. 1976), *as modified sub. nom.*, NRDC v. Costle 12 Env't Rep. Cas. (BNA) 1833 (D.D.C. 1979).*See supra* notes 58-61 and accompanying text.

[115] The list of sixty-five toxic pollutants developed in the consent decree and which Congress later specified as toxic pollutants in the 1977 amendments contains broad arrays of pollutants and pollutant classes. For example, several metals are listed as both the elemental and compound forms. Large organic classes such as nitrophenols are also listed. Section 307(a)(1) provides that the EPA may revise the list to add or delete pollutants based on a number of specified factors. The EPA has in a limited number of cases deleted specific members of a pollutant class based on a showing that they were relatively non-toxic when discharged into water. *See, e.g.*, the delisting of bio-chloromethyl ether 46 Fed. Reg. 10,723 (1981). Although the EPA at one time proposed adding ammonia to the toxics list, that proposal was withdrawn, and the EPA has not added a new toxic pollutant since the 1977 amendments. The EPA has, without employing the statutory provisions for revision of the 307(a)(1) toxics list, prepared a more detailed list of 134 pollutants found among the sixty-five pollutants and pollutant classes formally designated as toxic. These 134 pollutants are the ones which the Agency generally treats as toxic for purposes of the NPDES program. Although Congress was aware of the revised list when it mandated promulgation of the 65 toxic pollutants, see LEG. HIST. 1977, *supra* note 9, at 327-28, they have never been formally promulgated as a revision to the 307(a)(1) toxic list. Their toxic status for purposes of regulation, and more significantly the status of other pollutants arguably within the 65 but not on the list of 134, remains questionable.

[116] 40 C.F.R. 401.15(52), (28), (49) (1984).

[117] *See, e.g.*, effluent limitations guidelines for the Textile Mills Point Source Category, 40 C.F.R. §§ 410.1(b), 410.12 - 410.13 (1984). *See also* 40 C.F.R. § 136.3, Table I, No. 96 (1984).

of differing degrees of toxicity.[118]

EPA now takes the position that 4AAP phenol contains both toxic and non-toxic pollutants for purposes of regulation under the Act. EPA stated in the preamble to the newly promulgated permit regulations that "an applicant would be eligible for a variance under sections 301(c) or 301(g) from a BAT limit on total phenols upon a demonstration . . . that either those toxic phenolics listed under 307(a) of the CWA are not present . . . (or are otherwise adequately controlled)."[119] Because the 307(a)(1) toxics list still identifies broad classes of toxic phenols, it is not completely clear which phenolic compounds are to be treated as toxic and which are non-toxic.

Many of the toxic pollutants are metals and their compounds. EPA formerly required the use of an analytical technique measuring "total metals."[120] This method measures the amount of metal present under conditions of high acidity, and thus use of this method may indicate the presence of metals which would not normally become "bioavailable" in the environment.[121] EPA in its permit regulations now takes the position that metals should be regulated by means of a method called "total recoverable metals." This approach uses a weak acid to dissolve readily soluble solids and filtration to remove residual solids.[122] EPA has concluded that this technique provides an adequate compromise between "over control" resulting from measuring total metals and other techniques which might not measure metals potentially released under some environmental conditions.[123] Because the measurement technique can significantly affect the level of control required this is a potentially significant modification.

Post-permit issuance reporting requirements. Because compli-

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[118] 49 Fed. Reg. 38,005 (1984).
[119] *Id.*
[120] *Id.* at 38,028.
[121] *Id.*
[122] *Id.* (to be codified at 40 C.F.R. § 122.45(c)).
[123] 49 Fed. Reg. at 38,029 (1984).

ance with permit requirements is in most cases deemed compliance with the Act, discharge of pollutants not specifically limited in a permit will not constitute a violation of the Act.[124] Although EPA develops a specific limitation on a pollutant, in part, to ensure the use of pollution control equipment which should control other pollutants in the effluent,[125] the discharge of non-specified pollutants is not a permit violation. EPA has tried to develop a regulation incorporating limitations on all of the pollutants identified in a permit application as a permit requirement. The problems of justifying such a blanket limitation have, however, forced the Agency to abandon this approach.[126]

Rather than placing enforceable limits on non-regulated pollutants, the permit regulations place requirements on facilities to report any new or increased discharges of these pollutants. EPA's permit regulations now require each permittee to report any change which would result in the routine or frequent discharge of a toxic pollutant not specifically limited in the permit at greater than 100 ppb or five times greater than the amount reported in the application, whichever is higher.[127] Changes in activity which may produce non-routine discharges of toxic pollutants must be reported if the discharges exceed 500 ppb or ten times the amount reported in the application, whichever is higher.[128] These reports can form the basis for modifying the permit to include specific limitations on any such pollutant.[129]

Permit modification. Existing permits are not normally modified during their term to reflect new requirements, such as newly promulgated national effluent limitations

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[124] 33 U.S.C. 1342(k) (1982). *See supra* notes 23-27 and accompanying text.

[125] *See supra* notes 17-18 and accompanying text for an example of one such limitation.

[126] *See* 45 Fed. Reg. 33, 516, 33,522 (1980).

[127] 39 Fed. Reg. 38,008-38,009 (1984) (to be codified at 40 C.F.R. § 122.42(a)(1).

[128] 39 Fed. Reg. 38,006-38,009 (1984) (to be codified at 40 C.F.R. § 122.42(a)(2).

[129] *See infra* notes 120-125 and accompanying text.

guidelines.[130] Current EPA regulations provide, however, that permits may be modified on a number of grounds. One ground for modification is a determination that pollutants which are not expressly limited in the permit are being discharged at greater than appropriate technology-based levels.[131] Thus, information reported about the discharge of new pollutants or the discharge of pollutants in greater amounts than specified in the permit application can be used to reopen the permit to include additional limitations. Note, however, that if the discharge was identified in the permit application, the source has no obligation to monitor and report levels of discharge of that pollutant unless there is a change in activity resulting in greater discharges.[132] Thus, if EPA decides not to put specific limits on a pollutant and the source's pollution control equipment does not effectively control the pollutant, the discharge can continue, and the permittee is under no obligation to monitor for the pollutant.

An additional ground for permit modification is the receipt of "new information" which would have justified imposing additional limitations when the permit was issued.[133] As discussed below, this provision may be used to impose additional requirements if information is reported indicating, for example, violation of state water quality standards.[134] Additionally, EPA has promulgated a "reopener" requirement which provides that EPA may reopen any permit issued to a primary industry before June 30, 1981, to include a more stringent BAT effluent

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[130] In fact, new sources are protected from modification of their technology-based permit requirements for a period of ten years from issuance of their permit. 33 U.S.C. § 1316(d) (1982). The regulations do provide for inclusion of a reopener provision for modifying permits to reflect newly promulgated national effluent limitations guidelines in certain cases. *See infra* notes 121-125 and accompanying text.

[131] 40 C.F.R. § 122.62(a)(11) (1984).

[132] *See supra* note 118 and accompanying text.

[133] 40 C.F.R. § 122.62(a)(2) (1984). This modification provision, however, is only applicable if the information was not available at the date of original permit issuance. *Id.*

[134] *See infra* note 146 and accompanying text.

guideline for a toxic pollutant which is subsequently promulgated.[135]

C. *Water Quality Standards Regulations*

Pursuant to section 301(c)(1)(c) of the Act, effluent limitations must be included in NPDES permits to assure that state water quality standards are not violated.[136] In most cases, water quality standard-based effluent limitations are not written unless the state specifically has adopted "criteria" for the given pollutant. Although many states have criteria for toxic pollutants, there is little consistency in the number of types of toxic pollutants covered.[137] Until recently EPA had no express requirement that states establish criteria for specific toxic pollutants.[138]

In November, 1983, EPA promulgated revised water quality standards regulations which seem to impose requirements on states to adopt criteria for toxics.[139] The regulations first require states to review those waters where "toxic pollutants may be adversely affecting water quality or the attainment of the designated use or where the levels of toxic pollutants are at a level to warrant concern."[140] The regulations require, however, that states actually adopt criteria only "for such toxic pollutants applicable to the water body sufficient to protect the designated use."[141] This new requirement may be a significant tool for the federal government and private citizens to free states to expand coverage of toxic pollutants in their water quality standards. This could lead to greater reliance on water quality standards-based effluent limitations in NPDES permits.

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[135] 40 C.F.R. § 122.44(c) (1984).

[136] 33 U.S.C. § 1311(b)(1)(C) (1982).

[137] *See* Gaba, *supra* note 43, at 1206 n.194.

[138] The EPA's 1975 water quality standards regulations merely required states to specify "appropriate water quality criteria necessary to support" designated uses. 40 C.F.R. § 35.1550 (1975).

[139] 48 Fed. Reg. 51,400 (1983) (to be codified at 40 C.F.R. pt. 131) (proposed Nov. 8, 1983).

[140] 40 C.F.R. § 131.11(a)(2) (1984).

[141] *Id.*

Although EPA has only recently adopted a requirement that specific toxic pollutants be included in water quality standards, the Agency has for many years encouraged states to include a general narrative prohibition on the discharge of toxic pollutants in their water quality standards.[142] Such a prohibition generally states that it is unlawful to discharge toxic pollutants in toxic amounts.[143] Virtually every state now has some form of this prohibition.[144]

One of the most significant aspects of the new regulations is what they did not do. Although EPA had proposed regulations which would have allowed states to establish "designated uses" based on a cost/benefit assessment, the new regulations reaffirm the Agency's longstanding position that states must designate waters as "fishable/swimmable" wherever such condition is attainable.[145] This Agency position makes it difficult for states to "downgrade" or establish less stringent uses for their waters.

D. *Policy on Use of Whole Effluent Toxicity-Based Limitations*

Most permit limitations are expressed as numerical limits on the amounts of a specific pollutant that can be discharged. For several years EPA has considered the possibility of placing restrictions not only on specific pollutants within a waste stream but also on the toxicity of the waste stream as a whole.[146] Several "bioassay" tech-

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[142] *See* Gaba, *supra* note 43, at 1205 n.192.

[143] The EPA's recommended language was that "[a]ll waters shall be free from substances attributable to man-caused point source or nonpoint source discharges in concentrations that . . . [i]njure, are toxic to or produce adverse physiological or behavior responses in humans, animals or plants." Guidelines for State and Areawide Water Quality Management Program Development, 41 Fed. Reg. 48,777 (1976).

[144] *See* OFFICE OF WATER REGULATIONS AND STANDARDS, EPA, WATER QUALITY STANDARDS CRITERIA DIGEST, A COMPILATION OF STATE/FEDERAL CRITERIA: GENERAL PROVISIONS/FREEDOMS (1980).

[145] 40 C.F.R. § 131.10(a) (1984).

[146] Regulation of a broad group of pollutants through one pollutant "parameter" is not novel. Several "pollutants" which traditionally have been limited in NPDES permits are really parameters reflecting a complex array of pollutants.

niques, which measure how organisms respond to the effluent, are available and can even quantify the toxicity of the waste.[147] For example, the LC50 test measures toxicity in terms of the concentration of the waste necessary to kill 50 percent of an array of test organisms.[148] Thus a toxicity based permit limitation may specify that the discharge may not exceed a specified percentage of the LC50 level. Several state water quality standards contain such bioassay-based restrictions.[149]

Toxicity-based limitations have a number of advantages. First, such restrictions are tailored to local conditions since they generally employ local receiving water and even local organisms in the test procedures. Second, they can provide protection against discharge of a large number of complex toxic pollutants which otherwise might not be measurable. Third, whole effluent toxicity testing, unlike pollutant-by-pollutant limitations, takes into account the chemical interactions of pollutants in the waste stream.

EPA's existing NPDES permit regulations provide for inclusion of toxicity-based effluent limitations,[150] and in March, 1983, EPA published a "National Policy" on development of water quality-based permit limitations for

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Thus, a limit on "BOD" or biological oxygen demand is a limit on the group of organic substances which will deplete the oxygen content of water by oxidation at normal conditions. Similarly "COD" or chemical oxygen demand represents those substances which will oxidize under established conditions of temperature and pH. "TSS" or total suspended solids is the group of particulates which are filterable under certain conditions. Standard analytical techniques, however, make these pollutant "parameters" releavely easy to quantify and thus treat as essentially a single pollutant. *See generally* 40 C.F.R. 136.3 (1984).

[147] OFFICE OF WATER REGULATIONS AND STANDARDS, U.S. ENVIRONMENTAL PROTECTION AGENCY, WATER QUALITY STANDARDS HANDBOOK ch. 4, app. A (1983).

[148] U.S. ENVIRONMENTAL PROTECTION AGENCY, QUALITY CRITERIA FOR WATER 1 (1976).

[149] *See, e.g.*, Rule 1200-4-3.03(g) of the Tennessee Department of Health, Bureau of Environmental Health Services: "The instream concentrations of toxic pollutants shall not exceed 1/10 of the 96-hour LC 50 based upon available data using one or more of the most sensitive organisms significant to the aquatic community of the waters under consideration." Rule 1200-4-3.03(g) [3 B State Water Laws] ENV'T REP. (BNA) 916:0543 (May 26, 1967).

[150] 40 C.F.R. § 125.3(c)(4) (1984).

toxic pollutants.[151] The national policy leaves many unanswered questions and is somewhat inconsistent with the permit regulations. When read together, however, the policy and permit regulations give some idea of EPA's approach to using toxicity based limits in permits.

The two basic statutory bases for inclusion of limitations in NPDES permits are the technology-based effluent limitations of sections 301/304 and the water quality standard-based limitations derived from section 303.[152] Toxicity-based restrictions can, theoretically, be established on either basis. Conceptually one could develop a bioassay limitation designed to reflect what a given technology could achieve. Practically, it may be difficult for a permit writer to demonstrate that a given toxicity level, designated perhaps in terms of the LC50 of the treated effluent, could be achieved by a given technology. Nonetheless, the permit regulations provide that toxicity limits can be used to implement technology-based requirements such as BAT.[153]

The national policy authorizes use of toxicity restrictions only to implement water quality standards requirements more stringent than BAT.[154] Implementation of water quality standards with toxicity limits is conceptually simple. Because virtually every state has some form of narrative criterion which prohibits the discharge of toxic pollutants in toxic amounts,[155] presumably any source could be required to meet a toxicity limitation in order to achieve this standard. Since water quality standards requirements must be met regardless of technological feasibility, there is no requirement that the permit writer demonstrate that the toxicity limit is achievable by a given technology. EPA has also indicated that it may use toxicity testing as a means of monitoring the discharge. The

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[151] Policy Notice, 49 Fed. Reg. 9016 (1984).

[152] *See supra* notes 31-46, and accompanying text.

[153] 40 C.F.R. § 12.3(a) (1984).

[154] Such limitation on vehicles for reform 13 express. Policy Notice, 49 Fed. Reg. 9017 (1984).

[155] *See supra* notes 133-135 and accompanying text.

national policy expressly states that subsequent testing which indicates violations of water quality standards would be "new information" for purposes of reopening and modifying an existing permit.[156]

EPA is opaque at best in describing under what conditions it will subject a source to toxicity limitations. Because the policy applies only to situations where water quality standards are being violated, EPA recommends that additional testing requirements be imposed on discharges "only in selected cases where the potential for nonattainment of water quality standards exists."[157] Decisions on the type of testing the source must do to assess the toxicity of its waste are to be made on a "case-by-case" basis relying on many factors, including the complexity and variability of the discharge, the type of water body, and the ecology of the receiving water.[158] In determining whether toxicity-based limits should be included in a permit, the EPA national policy merely provides that "[w]here effluent toxicity is an appropriate control parameter, permit limits on effluent toxicity should be developed."[159]

III. CONCLUSION

These regulations and policies of EPA provide ample tools for ensuring that adequate effluent limitations are included in NPDES permits to control the discharge of toxic pollutants. Certainly, permits will include national effluent limitations guidelines. Although other provisions, including inclusion of pollutant effluent limits on a case-by-case basis and inclusion by states of criteria for toxic pollutants in water quality standards, seem to be mandatory, the regulations still afford substantial governmental discretion in deciding whether to regulate a pollu-

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[156] Policy Notice, 49 Fed. Reg. 9017 (1984).

[157] *Id.*

[158] *Id.*

[159] *Id.*

tant. It remains to be seen how aggressivly both the state and federal governments will employ these provisions.

The government is not the only actor in this drama, however, because local citizens and environmental groups concerned with the discharge of toxic pollutants may be able to use these provisions even when the government has declined to act. These seemingly mandatory provisions give citizens the ability to request more stringent requirements to comply with these provisions, either in the permit issuance process or at time of review of state water quality standards. Although the government may be able to affirmatively show that additional controls are not necessary, these requirements can help force the government to consider a range of issues and facts which otherwise might not have been addressed. The result can only be better NPDES permits and perhaps a cleaner environment.